

C hironomidae. *Pentaneura* sp. and *Polypedilum* sp.
 Sciaridae. *Sciara* sp.
 Muscidae. **Atherigona* sp. (possibly *oryzae* Mall.)

DIVISION OF ENTOMOLOGY,
 DEPARTMENT OF AGRICULTURE,
 BANGALORE-1.

S. USMAN

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47. LEECHES

Referring to Mr. Smythies's interesting note¹ on leeches, while not professing to be an expert on them, by many years of close contact (*sic*) with them in my vocation as a planter, I have been forced to observe these revolting creatures and their ways, and my observations may be useful to add to his.

I do not know how many species there are but have noted what appear to be many, some mottled, some striped and large, some small and black; these latter seem to be far the most painful as I have always found that when one can feel the stinging bite, one may be sure to find a small black one at work, whereas the larger ones are not noticed until one feels the wet sticky blood trickling down after they have dropped off. I have seen a very large pale coloured one on cattle. I presume that they are entirely dependent on blood for sustenance as their mouth parts are not designed for any other form of food. There are many warm-blooded mammals in the jungle for them—I have found them on snakes, but even then many must go hungry though in common with snakes, they too can go for long periods without food and it would be interesting to know how long a gorged leech takes to digest its load of blood. In the Anaimalai Hills I have found them throughout the dry weather along stream edges under heavy coffee shade and mulch. Many must die when they drop off their temporary hosts on to unsuitable ground and the blood inside them congeals in the hot sun before they can reach moist cover. A leech must have coolth and moisture to live.

It is well known how soon they appear again at the first rains after the dry period. Like earthworms, leeches carry their eggs in a larger segment of the body; when is this shed releasing the eggs,

¹ JBNHS, 51 (4) : 954.

during or after the dry weather? I believe leeches are both bi-sexual and hermaphroditic.

Mr. Smythies asks how high a leech can climb. While I do not believe in the parachutist leech, I have brushed them off low branches of trees at head level where I have noticed them sitting in the relaxed position at the extremities of the leaves, both in Assam and South India. I have seen them crawl up boles of trees to about four feet.

It takes some time for the leech to determine the direction of its next meal. This is evident in the manner in which it first extends itself from its contracted resting position and bends the upper part of its body towards the direction of the person and waves it about to and fro until it gets wind of its meal, then off it sets full tilt looping towards it falling over sometimes in its haste. Again this is demonstrated when two or more persons are walking in single file, the first person will find comparatively few on him but those following will be covered. This all goes to show that they scent their 'prey' through olfactory means. I have noted on a close and careful watch that the mouth or sucker is widely open during the osculations of the leech's body prior to its march towards one. I have found the maximum distance at which they first notice one to be about $2\frac{1}{2}$ yards.

Mr. Smythies mentions that leeches require complete freedom from fire to maintain existence. This is not borne out in the case of clearing jungle for tea plantations, etc., when the brush is fired and the clearing then planted up. As soon as a cover is obtained over the ground in two to three years leeches may again be found.

The danger from leech bites is of course the intense irritation set up at the site, and infection introduced from scratching. Is an irritant injected by the leech as in the case of the mosquito?

It is a fact that land leeches are not to be found in Africa at any rate in West Africa which I know. I have walked through cold dripping evergreen rain-forest in the hills of the Cameroons, which if it had been in the Nilgiris would have been crawling with them. However, they are compensated for by the presence of other noxious insects such as the Tsetse Fly, Chrysops, sandflies in millions, mosquitoes and soldier ants. Not all Indians are familiar with the leech. Familiarity breeds contempt, and I remember what delight tea pluckers used to show when a 'new girl' from the plains saw her first leech and ran shrieking with fright from it!

As regards protective clothing, a pair of linen stockings under woollen ones does the trick. I am not in favour of completely covering one's limbs with clothing as one spends more time than one can afford searching in the upper regions of one's clothing for them. They are bound to find a way in somewhere if not down one's neck. I prefer to let them have their fill round my knees by wearing shorts, at any rate one can pick them off there easily enough, and from where they can drop off easily when gorged.

I, CROMWELL HOUSE,
CROOK LOG, BEXLEYHEATH,
KENT, ENGLAND,
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R. N. CHAMPION-JONES